process) wherein the wafer having been processed by step 4 is formed into semiconductor chips. This step includes an assembling (dicing and bonding) process and a packaging (chip sealing) process. Step 6 is an inspection step wherein an operation check, a durability check and so on for the semiconductor devices provided by step 5, are carried out. With these processes, semiconductor devices are completed and they are shipped (step 7). --

IN THE CLAIMS:

Please AMEND claims 1, 7, 8, 10 and 11, as follows. A marked-up copy of the amended claims, showing the changes made thereto, is attached in Appendix A. For the Examiner's convenience, all claims currently pending in this application have been reproduced below:

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1. (Amended) An illumination system for illuminating a surface by use of light from a light source, said illumination system comprising:

an emission angle conserving optical unit having one of a lens and a lens array, for receiving light from the light source; and

a diffractive optical element for diffracting light from said emission angle conserving optical unit to produce a desired light intensity distribution on a predetermined plane,

wherein said diffractive optical element is disposed one of (i) at or adjacent to a position where the light from said emission angle conserving optical unit is focused by the one of

the lens and the lens array, and (ii) at a position which is optically conjugate with a position at which the light is focused by the one of the lens and the lens array.

2. An illumination system according to Claim 1, further comprising a multiple-beam producing element and a light projecting element for superposing light beams from said multiple-beam producing element one upon another on the surface to be illuminated, wherein the predetermined plane corresponds to a light entrance surface of said multiple-beam producing element.

3. An illumination system according to Claim 2, further comprising a zoom optical system for projecting the light intensity distribution, produced by said diffractive optical element, upon the light entrance surface of said multiple-beam producing element at a predetermined magnification.

4. An illumination system according to Claim 3, wherein there are a plurality of emission angle conserving optical units of different divergent angles, and wherein said emission angle conserving optical units are interchangeably set at a light path in accordance with a change in magnification of said zoom optical system.

5. An illumination system according to Claim 4, wherein an emission angle conserving optical unit placed at the light path is changed by another, whereby a numerical

aperture of light incident on the light entrance surface of said multiple-beam producing element is substantially registered with a preset numerical aperture of said multiple-beam producing means.

6. An illumination system according to Claim 1, wherein there are a plurality of diffractive optical elements for producing different light intensity distributions on the predetermined plane, wherein said diffractive optical elements are interchangeably set at a light path to produce a desired light intensity distribution on the predetermined plane.

7. (Amended) An illumination system according to Claim 1, wherein said diffractive optical element is one of a phase type and an amplitude type computer hologram.

8. (Amended) An illumination system according to Claim 1, wherein said emission angle conserving optical unit comprises a fly's eye lens having small lenses arrayed two-dimensionally.

9. An illumination system according to Claim 1, wherein said emission angle conserving optical unit comprises an aperture and a lens system.

10. (Amended) An exposure apparatus, comprising:

an illumination optical system for illuminating a mask surface, as a surface to be illuminated, with use of light from a light source, said illumination optical system including (i)

an emission angle conserving optical unit having one of a lens and a lens array, for receiving light from the light source, and (ii) a diffractive optical element for diffracting light from said emission angle conserving optical unit to produce a desired light intensity distribution on a predetermined plane, wherein said diffractive optical element is disposed one of (i) at or adjacent to a position where the light from said emission angle conserving optical unit is focused by the one of the lens and the lens array and (ii) at a position which is optically conjugate with a position at which the light is focused by the one of the lens and the lens array; and

a projection optical system for projecting a pattern formed on the mask surface, as illuminated with light from said illumination optical system, onto a wafer.

11. (Amended) A device manufacturing method, comprising the steps of:

applying a photosensitive material to a wafer;

illuminating a mask surface, as a surface to be illuminated, with use of light from an illumination optical system, wherein the illumination optical system includes (i) an emission angle conserving optical unit having one of a lens and a lens array, for receiving light from the light source, and (ii) a diffractive optical element for diffracting light from said emission angle conserving optical unit to produce a desired light intensity distribution on a predetermined plane, wherein the diffractive optical element is disposed one of (i) at or adjacent to a position where the light from the emission angle conserving optical unit is focused by the one of the lens and the lens array and (ii) at a position which is optically conjugate with a position at which the light is focused by the one of the lens and the lens array;